

**WATER QUALITY STANDARDS FOR APPROVED SURFACE WATERS
OF THE COEUR D'ALENE TRIBE**

2010

Prepared for: The United State's Environment Protection Agency (Region 10)

Prepared by: The Coeur d'Alene Tribe's Lake Management Department

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WATER QUALITY STANDARDS FOR APPROVED SURFACE WATERS OF THE COEUR D'ALENE TRIBE

1. INTRODUCTION

- (1) Aware of the terms of the Executive Orders of 1867 and 1873, federal recognition in the Federal Register, December 29, 1988 and the Tribal Constitution and By-Laws, ratified June 5, 1947 as amended, all of which provide that the Coeur d'Alene Indian Reservation shall be reserved by the United States for the purpose of establishing an independent exclusive political and economic community for the Coeur d'Alene Tribe and its members; the Coeur d'Alene Tribe hereby establishes these water quality standards covering those surface waters of Coeur d'Alene Lake and the St. Joe River within the exterior boundaries of the 1894 Coeur d'Alene Reservation. (Referred to herein as "Reservation TAS Waters"). These standards shall provide a mechanism for managing and regulating the quality and use of said waters by establishing the water quality goals for specific waterbodies, and providing a legal basis for regulatory controls.
- (2) These standards have been adopted pursuant to Sections 303 and 518 of the Clean Water Act and Chapter 42 of the Coeur d'Alene Tribal Code. These standards shall serve to protect the public health and welfare, enhance the quality of waters of the Coeur d'Alene Tribe, and serve the purposes of the Clean Water Act.
- (3) The purposes of these water quality standards are to restore, maintain and protect the chemical, physical, biological, and cultural integrity of Coeur d'Alene Reservation TAS Waters; to promote the health, social welfare, and economic well-being of the Coeur d'Alene Tribe, its people, and all the residents of the Coeur d'Alene Reservation; to achieve a level of water quality that provides for all cultural uses of the water, the protection and propagation of fish and wildlife, for recreation in and on the water, and all existing and designated uses of the water; to promote the holistic watershed approach to management of Reservation TAS Waters of the Coeur d'Alene Tribe; to provide for the protection of threatened and endangered species and to provide necessary guidance for the protection and/or maintenance of water quality throughout Reservation TAS waters.
- (4) These standards are designed to establish the uses for which the Reservation TAS Waters shall be protected, to prescribe water quality standards (narrative and numeric) to sustain the designated uses, and to protect existing water quality.
- (5) The water use and quality criteria set forth herein are established in conformance with water uses of Coeur d'Alene Reservation TAS Waters and in consideration of the natural water quality potential and limitations of the same.

2. DEFINITIONS

The following definitions are intended to facilitate the use of this chapter.

"Acute toxicity" refers to a stimulus severe enough to rapidly induce an effect; in aquatic toxicity tests, an effect observed in 96-hours or less is typically considered acute. When referring to aquatic toxicology or human health, an acute effect is not always measured in terms of lethality.

"Appropriate reference site or region" means a site on the same waterbody or within the same basin or eco-region that has similar habitat conditions and which is expected to represent the water quality and biological community attainable in the absence of human caused disturbances within the area(s) of concern.

"Aquatic species" means any plant or animal, which lives at least part of their life cycle in water.

"Best management practices (BMP)" means physical, structural, and/or managerial practices that, when used singularly or in combination, prevent or reduce pollution.

"Bioaccumulation" means the process by which a compound is taken up by and accumulates in an aquatic organism, from water, food, and sediments.

"Bioaccumulative chemicals" are any chemical that accumulates in aquatic organisms by a human health bioaccumulation factor greater than 1000 and has the potential upon entering surface waters to cause adverse effects, either by itself or in a form of its toxic transformation product, as a result of that accumulation.

"Biological assessment" is an evaluation of the biological condition of a water body using surveys of aquatic community structure, function, diversity, presence or absence, or other direct measurements of resident biota in surface waters.

"Biological criteria" means numerical values or narrative expressions that describe the biological integrity or aquatic communities inhabiting waters of a given designated aquatic life use. Biological criteria serve as an index of aquatic community health.

"Carcinogen" means any substance or agent that produces or tends to produce cancer in humans. For implementation of this chapter, the term carcinogen will apply to substances on the EPA lists of A (known human), B (probable human), and C (possible human) carcinogens.

"Chapter" means the *Water Quality Standards for Approved Surface Waters of the Coeur d'Alene Tribe* as set forth within this regulation.

"Chronic toxicity" means an adverse effect to an organism caused by a fairly long-term exposure (when compared to the life span of the organism) to a pollutant. These effects include changes in

feeding, growth, metabolism, reproduction, and genetic mutations. Short-term test methods for detecting chronic toxicity may be used.

"Constructed wetlands" means those wetlands intentionally created from non-wetland sites for the primary purpose of wastewater or stormwater treatment.

"Created wetlands" means those wetlands intentionally created from non-wetland sites to produce or replace natural wetland habitat.

"Critical condition" is when the physical, chemical, and biological characteristics of the receiving water environment interact with the effluent to produce the greatest potential adverse impact on aquatic biota and existing or characteristic water uses. For steady-state discharges to riverine systems the critical condition may be assumed to be equal to the 7Q10 flow event unless determined otherwise by the department.

"Cultural water use" means those water uses necessary to support and maintain the way of life of the Coeur d'Alene People including, but not limited to: use for sufficient flow for fish survival, and wildlife needs, and preservation of habitat for berries, roots, medicines and other vegetation significant to the values of the Coeur d'Alene People. Cultural water uses also include ceremonial activities involving Native American spiritual and cultural practices which may involve intimate contact with water and consumption of water. This shall include uses of a waterbody to fulfill cultural, traditional, spiritual, or religious needs of the Coeur d'Alene Tribe, as approved by the Coeur d'Alene Tribe.

"CWA" means the federal Clean Water Act (33 USC 1251 et seq.), as amended.

"Damage to the ecosystem" means any demonstrated or predicted stress to aquatic or terrestrial organisms or communities of organisms which the Department concludes may interfere with the health or survival success or natural structure and functioning of such populations. This stress may be due to alteration in habitat or changes in water temperature, chemistry, or turbidity, or other causes. In making a determination regarding ecosystem damage, the Department shall consider the cumulative effects of pollutants or incremental changes in habitat that may create stress over the long term.

"Department" means the Coeur d'Alene Tribe's Lake Management Department

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"Director" means the Director of the Coeur d'Alene Tribe's Lake Management Department.

"Designated use" means a use that is specified in water quality standards as a goal for a waterbody segment, whether or not it is currently being attained.

"E. coli": *Escherichia coli* means that portion of the coliform bacteria group, which is present in the intestinal tract, and feces of warm-blooded animals. *E. coli* is used as a direct indicator of human or animal caused fecal contamination in water. Presence of significant levels of *E. coli* in the water has been linked to gastroenteritis in humans.

"EPA" means the United States Environmental Protection Agency.

"Epilimnion" means the top-most layer in a thermally stratified lake, occurring above the deeper hypolimnion.

"Existing uses" means all uses actually attained in the water body on or after November 28, 1975, whether or not they are explicitly stated as designated uses in the water quality standards or presently exist.

"Geometric mean" means either the n th root of a product of n factors, or the antilogarithm of the arithmetic mean of the logarithms of the individual sample values.

"Hardness" means a measure of the calcium and magnesium salts present in water. For the purpose of this chapter, hardness is measured in milligrams per liter and expressed as calcium carbonate (CaCO_3).

"Hypolimnion" means the lowest, (usually coldest) layer of a stratified lake and lies below the metalimnion and epilimnion.

"Intermittent stream" means a waterway, which flows only at certain times of the year or does not flow continuously.

"Mean detention time" means the time obtained by dividing a reservoir's mean annual minimum total storage by the thirty-day ten-year low-flow from the reservoir.

"Metalimnion" means the middle layer of a stratified lake it lies below the epilimnion and above the hypolimnion. The metalimnion is usually characterized by showing a rapid temperature drop (1 degree C/1 meter in depth change) with increasing depth.

"mg/L" means milligrams per liter.

"Migration or translocation" means any natural movement of an organism or community of organisms from one locality to another locality.

"Mixing Zone" means that portion of water body adjacent to a point source discharge where mixing results in the dilution of the effluent with the receiving water. Water quality numeric criteria may be exceeded in a mixing zone as conditioned and provided for in section 12.

"Mutagen" means substances or chemicals with the ability to increase the frequency or extent of a significant and basic alteration in an organism's chromosomes or genetic material as determined according to the United States Environmental Protection Agency Guidelines for Mutagenicity Risk Assessment, 51 Fed. Reg. 34006 (1986)

"Natural background" or "Natural conditions" means surface water quality that would be present without human-caused pollution. When assessing natural background conditions in the

headwaters of a disturbed watershed it may be necessary to use the natural background conditions of a neighboring or similar watershed as a reference condition.

"Near Instantaneous and Complete Mix" means no more than a 10 percent difference in bank-to-bank concentrations within a longitudinal distance not greater than 2 stream/river widths.

"Nonpoint source" means pollution that enters any waters from any dispersed land-based or water-based activities, including but not limited to, atmospheric deposition, surface water runoff from agricultural lands, urban areas or forest lands; subsurface or underground sources; or discharges from boats or marine vessels not otherwise regulated under the National Pollutant Discharge Elimination System program.

"NPDES" means National Pollutant Discharge Elimination System, the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the CWA.

"NTU" means as nephelometric turbidity units (NTU) and measured with a calibrated turbidimeter.

"ppm" means parts per million.

"Permit" means a document issued pursuant to tribal code or federal laws (such as NPDES, CWA, Section 401; CWA, Section 404) specifying the waste treatment and control requirements and waste discharge conditions.

"Persistent pollutant" means a pollutant which is slow to or does not decay, degrade, transform, volatilize, hydrolyze, or photolyze. A chemical with a half-life greater than two months in the water column, sediment and biota.

"Person" means any individual or group or combination thereof acting as a unit, however associated; any organization of any kind, whether organized for profit or not, and regardless of the form in which it does business, whether as a sole proprietorship, partnership, joint venture, trust, unincorporated association, corporation, government, including any part, subdivision, or agency of any of the foregoing, or otherwise; and any combination of individuals or organizations in whatever form, and the plural as well as the singular number.

"pH" means the negative logarithm of the hydrogen ion concentration.

"Point source" means any discernible, confined and discrete conveyance, including, but not limited to, any pipe, ditch, channel, sewer, tunnel, conduit, well, discrete fissure, container, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.

"Pollutant" includes dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

"Pollution" includes such contamination, or other alteration of the physical, chemical or biological properties, of any waters of the Tribe, including change in temperature, taste, color, turbidity, or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substance into any waters of the Tribe as will or is likely to create a nuisance or impair any beneficial use of such waters.

"Receiving waters" means any watercourse or water body that receives treated or untreated wastewater.

"Reservation" means all lands within the exterior boundaries of the Coeur d'Alene Reservation.

"Reservation Waters" or "Coeur d'Alene Reservation Waters" includes lakes, rivers, ponds, streams (including intermittent and ephemeral streams), wetlands, and all other surface waters and water courses within the exterior boundaries of the 1894 Coeur d'Alene Reservation. These waters are portrayed in Map Attachments 1 through 4 hereto and referred to therein as "Reservation Waters."

"Reservation TAS Waters" or "Coeur d'Alene Reservation TAS Waters" means waters that are a distinct yet connected sub-set of the "Reservation Waters" and for which EPA has expressly approved the *Water Quality Standards for Approved Surface Waters of the Coeur d'Alene Tribe* under section 303 of the CWA and affirmed the Tribes authority to set water quality standards under section 518(e) of the CWA. These waters are portrayed in Map Attachments 1 through 4 hereto and referred to therein as "Reservation TAS Waters." EPA's approval of the Tribe's water quality standards and confirmation of the Tribe's authority to regulate water quality on these waters does not in any way release the Coeur d'Alene Tribe's claim to sole authority to regulate all Coeur d'Alene Reservation Waters and all Disputed Waters.

"Disputed Waters" means all navigable waters within the exterior boundaries of the 1873 Coeur d'Alene Reservation over which the Coeur d'Alene Tribe maintains claims to jurisdiction, including, but not limited to, the Coeur d'Alene River downstream from Cataldo, including the lateral lakes, the southern half of the Spokane River to the Washington State border, and Coeur d'Alene Lake, to the extent not addressed by the decision in *Idaho v. United States*, 121 S.Ct. 2135 (2001). A portion of these waters are portrayed in Map Attachments 1 through 4 hereto and referred to therein as "Disputed Waters."

"Reference aquatic community" means aquatic life expected to exist in a particular habitat when water quality standards for a specific eco-region, basin, or water body are met. This shall be established by accepted biomonitoring techniques and comparison with aquatic communities occurring in appropriate reference sites within the eco-region.

"Stormwater" means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface waterbody, or a constructed infiltration facility.

"Temperature" means water temperature expressed in degrees Celsius (° C).

"Teratogen" means substances or chemicals with the ability to cause developmental malformations and monstrosities, as determined according to the United States Environmental Protection Agency Guidelines for Health Assessment of Suspect Developmental Toxicants, 51 Fed. Reg. 34028 (1986),

"Threatened or endangered species (listed species)" means any species of fish, wildlife, or plant which has been determined to be endangered or threatened under section 4 of the Endangered Species Act. Listed species are found in 50 CFR 17.11.-17.12.

"Toxicity" means acute or chronic toxicity.

"Toxicity test" means a test using selected organisms to determine the acute or chronic effects of a chemical pollutant or whole effluent.

"Toxic pollutant" means those pollutants, or combinations of pollutants, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to EPA or the Department, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring.

"Tribal Council" means the governing body of the Coeur d'Alene Tribe which has been empowered to act for and on behalf of the Coeur d'Alene Tribe pursuant to the revised Constitution and By-Laws, adopted by the Coeur d'Alene Tribe by referendum November 10, 1984, and approved by the Secretary of the Interior, Bureau of Indian Affairs, December 21, 1984.

"Tribe" means the Coeur d'Alene Tribe.

"Turbidity" means the clarity of water expressed as nephelometric turbidity units (NTU) and measured with a calibrated turbidimeter.

"ug/L" means micrograms per liter.

"Wastes" include sewage, industrial wastes, and all other liquid, gaseous, solid, radioactive, or other substances which will or may cause pollution or tend to cause pollution of any water body.

"Water quality" means the chemical, physical, biological, and cultural characteristics of a waterbody.

"Wetland" means any area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

"Wildlife habitat" means the waters of the Tribe used by, or that directly or indirectly provide food support to, fish, other aquatic life, and wildlife for any life history stage or activity.

"Zone of initial dilution" means the region of initial mixing surrounding or adjacent to the outfall pipe or diffuser port, in which dilution is caused by the momentum and buoyancy of the discharge.

3. GENERAL CONDITIONS

The following conditions shall apply to the water quality criteria and classifications set forth herein.

- (1) All Reservation TAS Waters shall be free from pollutants in concentrations or combinations that do not protect the most sensitive use of the water body, except as provided for under Mixing Zones (section 12).
- (2) Whenever the natural conditions of Reservation TAS Waters are of a lower quality than the criteria assigned, the Department may determine that the natural conditions shall constitute the water quality criteria, following the procedures set forth in Section 4.
- (3) At the boundary between waters of different classifications, the more stringent water quality criteria shall prevail. When a distinction cannot be made among surface water, wetlands, groundwater, or sediments, the applicable standards shall depend on which existing or designated use is, or could be, adversely affected. If existing or beneficial uses of more than one resource are affected, the most protective criteria shall apply.
- (4) The Department may revise criteria on an area-wide or waterbody-specific basis as needed to protect aquatic life and human health and other existing and designated uses and to increase the technical accuracy of the criteria being applied. The Department shall formally adopt any revised criteria following public review and comment.
- (5) In aquatic habitats where more than one designated use exists, the most stringent use standards will apply.

4. SITE-SPECIFIC CRITERIA

(1) The Tribe may revise criteria on reservation TAS waters as needed to protect aquatic life and human health and other existing and designated uses to increase the technical accuracy of the criteria being applied.

(2) The Department will, in its discretion, establish a site-specific water quality criterion that modifies a water quality criterion set out in Section 7 or 19, in regulation, as described in (3) and (4) of this section.

(3) Whenever the natural condition of the surface reservation TAS waters are demonstrated to be of lower quality than the criteria assigned, the Tribe may determine that the natural conditions shall constitute the water quality criteria,

(a) If the natural condition varies with time, the natural condition will be determined as the natural condition measured during an annual, seasonal, or shorter period of time prior to human caused influence.

(b) The Tribe may, at its discretion determine a natural condition for one or more seasonal or shorter time period to reflect variable ambient conditions.

(c) Historical data or data from an appropriate reference site, that represents natural condition may be used to determine the criterion.

(4) Upon application, or on its own initiative, the Department will, in its discretion, set site-specific criteria if the Department finds that the evidence reasonably demonstrates that the site-specific criterion fully protects designated uses in section 18 and that:

(a) for reasons specific to a certain site, a criterion in Section 7 or Section 19 is more stringent or less stringent than necessary to ensure full protection of the corresponding use class; or

(b) a criterion would be better expressed in terms different from those in Section 7 or Section 19.

(c) The species or habitats present, or expected to be present under natural conditions, are more sensitive or less sensitive to a substance than indicated by the criterion, and a site-specific criterion is required to prevent adverse effects or to alleviate unnecessarily restrictive general criterion; or

(d) the natural characteristics of the receiving environment would increase or reduce the biological availability or the toxicity of a substance, or otherwise alter the substance, and a site-specific criterion is required to prevent adverse effects or to alleviate an unnecessarily restrictive general criterion.

(5) An applicant seeking a site-specific criterion under this section shall provide all information that the Department determines is necessary to modify an existing criterion. The Department will, in a timely manner, request and review for completeness, information submitted under this subsection. In all cases, the burden of proof is on the applicant seeking a site-specific criterion.

(6) Any modifications to the criteria in Section 7 or Section 19 will be adopted in regulation.

- (7) The Tribe shall formally adopt any revised criteria following public review and comment.
- (8) Revised criteria will be submitted to EPA, after adoption by the Tribe, for review along with any information that will aid EPA to determine the adequacy of the scientific basis of the revised criterion.

5. NARRATIVE CRITERIA

All Reservation TAS Waters, including those within designated mixing zones, shall be free from substances attributable to point source discharges, non-point sources, or instream activities in accordance with the following:

- (1) Floating Solids, Oil and Grease: All waters shall be free from visible oils, scum, foam, grease, and other floating materials and suspended substances of a persistent nature resulting from anthropogenic causes.
- (2) Color: True color-producing materials resulting from anthropogenic causes shall not create an aesthetically undesirable condition; nor should color inhibit photosynthesis or otherwise impair the existing and designated uses of the water.
- (3) Odor and Taste: Water contaminants from anthropogenic causes shall be limited to concentrations that will not impart unpalatable flavor to fish, or result in offensive odor or taste arising from the water, or otherwise interfere with the existing and designated uses of the water.
- (4) Nuisance Conditions: Nutrients or other substances from anthropogenic causes shall not be present in concentrations which will produce objectionable algal densities or nuisance aquatic vegetation, result in a dominance of nuisance species, or otherwise cause nuisance conditions.
- (5) Turbidity: Turbidity shall not be at a level to impair designated uses or aquatic biota.
- (6) Bottom Deposits: All Reservation TAS Waters shall be free from anthropogenic contaminants that may settle and have a deleterious effect on the aquatic biota or that will significantly alter the physical and chemical properties of the water or the bottom sediments.

6. ANTIDegradation Policy

- (1) Existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected. Where designated uses of the water body are impaired, there shall be no measurable lowering of water quality with respect to the pollutant or pollutants which are causing or contributing to the impairment.

(2) Where the quality of the waters exceeds levels necessary to support propagation of fish and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the Tribe finds, after the Tribe's intergovernmental coordination and public participation provisions have been met, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lowering of water quality, the Tribe shall assure the degradation will continue to fully protect existing uses and will not adversely affect threatened and endangered species or public health as determined by the Department. Further, the Tribe shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective, and reasonable best management practices for nonpoint source control.

(3) Outstanding resource waters. Waters meeting one or more of the following criteria shall be considered for outstanding resource water designation:

- (a) Outstanding national or tribal resource;
- (b) Documented critical habitat for populations of threatened or endangered species;
- (c) Waters of exceptional recreational, ceremonial, cultural, or ecological significance; or
- (d) Waters supporting priority species as determined by the Tribe.

(4) Where waters constitute an outstanding resource water, the water quality and uses shall be maintained and protected and pollutants that will reduce the existing quality thereof shall not be allowed to enter such waters. To accomplish this the Department may require water quality controls, maintenance of natural flow regimes, protection of instream habitats, and pursuit of land use practices protective of the watershed.

(5) In those cases where potential water quality impairments associated with thermal discharge are involved, the Antidegradation Policy and implementing methods shall be consistent with Section 316 of the Clean Water Act, as amended.

7. TOXIC SUBSTANCES

(1) Toxic substances shall not be introduced into Reservation TAS Waters in concentrations which have the potential either singularly or cumulatively to adversely affect existing and designated water uses, cause acute or chronic toxicity to the most sensitive biota dependent upon those waters, or adversely affect public health, as determined by the Department, except as allowed for under Mixing Zones.

(2) The Department shall employ or require chemical testing, acute and/or chronic toxicity testing, and biological assessments, as appropriate, to evaluate compliance with subsection (1) of this section. Where necessary the Department shall establish controls to ensure that aquatic communities and the existing and designated beneficial uses of waters are being fully protected.

(3) Criteria for toxic, and other substances not listed shall be determined with consideration of *USEPA Quality Criteria for Water* found at, EPA-822-H-04-001 December 2004 and other relevant information as appropriate.

(4) Risk-based criteria for carcinogenic substances shall be applied such that the upper-bound excess cancer risk is less than or equal to one in one million, which means the probability of one excess cancer per one million people exposed.

(5) The aquatic organism consumption rate utilized in determining the human health criteria shall be EPA's current recommended rate of 17.5 g/day as provided in 63 F.R. 43756.

(6) Criteria for metals shall be applied as dissolved values. Except lead and selenium which are represented as total recoverable.

(7) The criteria in the following table shall be applied to all Reservation TAS Waters for the protection of aquatic life and human health.

(8) Criteria Maximum Concentration and Criterion Continuous Concentration
The Criteria Maximum Concentration (CMC) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed briefly without resulting in an unacceptable effect. The Criterion Continuous Concentration (CCC) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect. The CMC and CCC are just two of the six parts of an aquatic life criterion; the other four parts are the acute averaging period, chronic averaging period, acute frequency of allowed exceedence, and chronic frequency of allowed exceedence. Because 304(a) aquatic life criteria are national guidance, they are intended to be protective of the vast majority of the aquatic communities in the United States.

(9) Contaminants Without Numeric Criteria (Blanks)

EPA has not calculated criteria for contaminants with blanks. However, permit authorities should address these contaminants in NPDES permit actions using the Tribe's existing narrative criteria for toxics.

(10) WATER QUALITY CRITERIA FOR TOXIC POLLUTANTS

The concentration for each compound listed in this table is a criterion for aquatic life or human health protection. Selecting values for regulatory purposes will depend on the most sensitive beneficial use to be protected and the level of protection necessary for aquatic life and human health as specified within this table. All concentrations, except asbestos, are micrograms per liter ($\mu\text{g/L}$). All values are expressed as dissolved except lead and selenium which are expressed as total recoverable.

Numeric Criteria for Toxic Substances for TAS waters designated for Aquatic Life, Recreation and Cultural or Domestic Water Supply Use.

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- a. Columns A1, A2, and B2 of the following table apply to TAS waters designated for aquatic life use.
- b. Column B2 of the following table applies to TAS waters designated for recreation and cultural use.
- c. Column B1 of the following table applies to TAS waters designated for domestic water supply use

					Human Health For Consumption of:		
Priority Pollutant		CAS Number	CMC (µg/L) A1	CCC (µg/L) A2	Water + Organism (µg/L) B1	Organism Only (µg/L) B2	FR Cite/ Source
1	Ammonia	7664417	FRESHWATER CRITERIA ARE pH, Temperature and Life-stage DEPENDENT – see section 12 of this chapter				EPA822-R- 99-014
2	Antimony	7440360			5.6 B	640 B	65FR66443
3	Arsenic	7440382	340 A,D,K	150 A,D,K	0.018 C,M,S	0.14 C,M,S	65FR31682 57FR60848
4	Beryllium	7440417			Z		65FR31682
5	Cadmium	7440439	2.0 D,E,K,bb	0.25 D,E,K,bb	Z		EPA-822-R- 01-001 65FR31682
6	Chlorine	7782505	19	11			Gold Book
7	Chromium (III)	1606583 1	570 D,E,K	74 D,E,K	Z Total		EPA820/B- 96-001 65FR31682
8	Chromium (VI)	1854029 9	16 D,K	11 D,K	Z Total		65FR31682
9	Copper	7440508	13 D,E,K,cc	9.0 D,E,K,cc	1,300 U		65FR31682

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					Human Health For Consumption of:		
Priority Pollutant		CAS Number	CMC (µg/L) A1	CCC (µg/L) A2	Water + Organism (µg/L) B1	Organism Only (µg/L) B2	FR Cite/ Source
10	Lead	7439921	82 E	3.2 E			65FR31682
11	Mercury	7439976	1.4 D,K,	0.012hh	0.05	0.051	57FR60848 62FR42160 65FR31682
12	Nickel	7440020	470 D,E,K	52 D,E,K	610 B	4,600 B	65FR31682
13	Selenium	7782492		5.0 T	170 Z	4200	65FR31682 65FR66443
14	Silver	7440224	3.2 D,E,G				65FR31682
15	Thallium	7440280			0.24	0.47	68FR75510
16	Zinc	7440666	120 D,E,K	120 D,E,K	7,400 U	26,000 U	65FR31682 65FR66443
17	Cyanide	57125	22 K,Q	5.2 K,Q	140 jj	140 jj	EPA820/B- 96-001 57FR60848 68FR75510
18	Asbestos	1332214			7 million fibers/L I		57FR60848
19	2,3,7,8-TCDD (Dioxin)	1746016			5.0E-9 C	5.1E-9 C	65FR66443
20	Acrolein	107028			190	290	65FR66443
21	Acrylonitrile	107131			0.051 B,C	0.25 B,C	65FR66443

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					Human Health For Consumption of:		
Priority Pollutant		CAS Number	CMC (µg/L) A1	CCC (µg/L) A2	Water + Organism (µg/L) B1	Organism Only (µg/L) B2	FR Cite/ Source
22	Benzene	71432			2.2 B,C	51 B,C	IRIS 01/19/00 &65FR6644 3
23	Bromoform	75252			4.3 B,C	140 B,C	65FR66443
24	Carbon Tetrachloride	56235			0.23 B,C	1.6 B,C	65FR66443
25	Chlorobenzene	108907			130 Z,U,	1,600 U	68FR75510
26	Chlorodibromomethane	124481			0.40 B,C	13 B,C	65FR66443
27	Chloroethane	75003					
28	2-Chloroethylvinyl Ether	110758					
29	Chloroform	67663			5.7 C,P	470 C,P	62FR42160
30	Dichlorobromomethane	75274			0.55 B,C	17 B,C	65FR66443
31	1,1-Dichloroethane	75343					
32	1,2-Dichloroethane	107062			0.38 B,C	37 B,C	65FR66443
33	1,1-Dichloroethylene	75354			330	7,100	68FR75510
34	1,2-Dichloropropane	78875			0.50 B,C	15 B,C	65FR66443
35	1,3-Dichloropropene	542756			0.34 c	21 c	68FR75510
36	Ethylbenzene	100414			530	2,100	68FR75510
37	Methyl Bromide	74839			47 B	1,500 B	65FR66443
38	Methyl Chloride	74873					65FR31682

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					Human Health For Consumption of:		
Priority Pollutant		CAS Number	CMC (µg/L) A1	CCC (µg/L) A2	Water + Organism (µg/L) B1	Organism Only (µg/L) B2	FR Cite/ Source
39	Methylene Chloride	75092			4.6 B,C	590 B,C	65FR66443
40	1,1,2,2-Tetrachloroethane	79345			0.17 B,C	4.0 B,C	65FR66443
41	Tetrachloroethylene	127184			0.69 C	3.3 C	65FR66443
42	Toluene	108883			1,300 Z	15,000	68FR75510
43	1,2-Trans-Dichloroethylene	156605			140 Z	10,000	68FR75510
44	1,1,1-Trichloroethane	71556			Z		65FR31682
45	1,1,2-Trichloroethane	79005			0.59 B,C	16 B,C	65FR66443
46	Trichloroethylene	79016			2.5 C	30 C	65FR66443
47	Vinyl Chloride	75014			0.025 C,kk	2.4 C,kk	68FR75510
48	2-Chlorophenol	95578			81 B,U	150 B,U	65FR66443
49	2,4-Dichlorophenol	120832			77 B,U	290 B,U	65FR66443
50	2,4-Dimethylphenol	105679			380 B	850 B,U	65FR66443
51	2-Methyl-4,6-Dinitrophenol	534521			13	280	65FR66443
52	2,4-Dinitrophenol	51285			69 B	5,300 B	65FR66443
53	2-Nitrophenol	88755					
54	4-Nitrophenol	100027					

					Human Health For Consumption of:		
Priority Pollutant		CAS Number	CMC (µg/L) A1	CCC (µg/L) A2	Water + Organism (µg/L) B1	Organism Only (µg/L) B2	FR Cite/ Source
55	3-Methyl-4-Chlorophenol	59507			U	U	
56	Pentachlorophenol	87865	19 F,K	15 F,K	0.27 B,C	3.0 B,C,H	65FR31682 65FR66443
57	Phenol	108952			21,000 B,U	1,700,000 B,U	65FR66443
58	2,4,6-Trichlorophenol	88062			1.4 B,C	2.4 B,C,U	65FR66443
59	Acenaphthene	83329			670 B,U	990 B,U	65FR66443
60	Acenaphthylene	208968					
61	Anthracene	120127			8,300 B	40,000 B	65FR66443
62	Benzidine	92875			0.000086 B,C	0.00020 B,C	65FR66443
63	Benzo(a)Anthracene	56553			0.0038 B,C	0.018 B,C	65FR66443
64	Benzo(a)Pyrene	50328			0.0038 B,C	0.018 B,C	65FR66443
65	Benzo(b)Fluoranthene	205992			0.0038 B,C	0.018 B,C	65FR66443
66	Benzo(ghi)Perylene	191242					
67	Benzo(k)Fluoranthene	207089			0.0038 B,C	0.018 B,C	65FR66443
68	Bis(2-Chloroethoxy)Methane	111911					

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					Human Health For Consumption of:		
Priority Pollutant		CAS Number	CMC (µg/L) A1	CCC (µg/L) A2	Water + Organism (µg/L) B1	Organism Only (µg/L) B2	FR Cite/ Source
69	Bis(2-Chloroethyl)Ether	111444			0.030 B,C	0.53 B,C	65FR66443
70	Bis(2-Chloroisopropyl)Ether	108601			1,400 B	65,000 B	65FR66443
71	Bis(2-Ethylhexyl)Phthalate ^x	117817			1.2 B,C	2.2 B,C	65FR66443
72	4-Bromophenyl Phenyl Ether	101553					
73	Butylbenzyl Phthalate ^w	85687			1,500 B	1,900 B	65FR66443
74	2-Chloronaphthalene	91587			1,000 B	1,600 B	65FR66443
75	4-Chlorophenyl Phenyl Ether	7005723					
76	Chrysene	218019			0.0038 B,C	0.018 B,C	65FR66443
77	Dibenzo(a,h)Anthracene	53703			0.0038 B,C	0.018 B,C	65FR66443
78	1,2-Dichlorobenzene	95501			420	1,300	68FR75510
79	1,3-Dichlorobenzene	541731			320	960	65FR66443
80	1,4-Dichlorobenzene	106467			63	190	68FR75510
81	3,3'-Dichlorobenzidine	91941			0.021 B,C	0.028 B,C	65FR66443
82	Diethyl Phthalate ^w	84662			17,000 B	44,000 B	65FR66443
83	Dimethyl Phthalate ^w	131113			270,000	1,100,000	65FR66443

					Human Health For Consumption of:		
Priority Pollutant		CAS Number	CMC (µg/L) A1	CCC (µg/L) A2	Water + Organism (µg/L) B1	Organism Only (µg/L) B2	FR Cite/ Source
84	Di-n-Butyl Phthalate ^W	84742			2,000 B	4,500 B	65FR66443
85	2,4-Dinitrotoluene	121142			0.11 C	3.4 C	65FR66443
86	2,6-Dinitrotoluene	606202					
87	Di-n-Octyl Phthalate	117840					
88	1,2-Diphenylhydrazine	122667			0.036 B,C	0.20 B,C	65FR66443
89	Fluoranthene	206440			130 B	140 B	65FR66443
90	Fluorene	86737			1,100 B	5,300 B	65FR66443
91	Hexachlorobenzene	118741			0.00028 B,C	0.00029 B,C	65FR66443
92	Hexachlorobutadiene	87683			0.44 B,C	18 B,C	65FR66443
93	Hexachlorocyclopentadiene	77474			40 U	1,100 U	68FR75510
94	Hexachloroethane	67721			1.4 B,C	3.3 B,C	65FR66443
95	Ideno(1,2,3-cd)Pyrene	193395			0.0038 B,C	0.018 B,C	65FR66443
96	Isophorone	78591			35 B,C	960 B,C	65FR66443
97	Naphthalene	91203					
98	Nitrobenzene	98953			17 B	690 B,H,U	65FR66443
99	N-Nitrosodimethylamine	62759			0.00069 B,C	3.0 B,C	65FR66443

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					Human Health For Consumption of:		
Priority Pollutant		CAS Number	CMC (µg/L) A1	CCC (µg/L) A2	Water + Organism (µg/L) B1	Organism Only (µg/L) B2	FR Cite/ Source
100	N-Nitrosodi-n-Propylamine	621647			0.0050 B,C	0.51 B,C	65FR66443
101	N-Nitrosodiphenylamine	86306			3.3 B,C	6.0 B,C	65FR66443
102	Phenanthrene	85018					
103	Pyrene	129000			830 B	4,000 B	65FR66443
104	1,2,4-Trichlorobenzene	120821			35	70	68FR75510
105	Aldrin	309002	3.0 G		0.000049 B,C	0.000050 B,C	65FR31682 65FR66443
106	alpha-BHC	319846			0.0026 B,C	0.0049 B,C	65FR66443
107	beta-BHC	319857			0.0091 B,C	0.017 B,C	65FR66443
108	gamma-BHC (Lindane)	58899	0.95 K		0.98	1.8	65FR31682 68FR75510
109	delta-BHC	319868					
110	Chlordane	57749	2.4 G	0.0043 G,aa	0.00080 B,C	0.00081 B,C	65FR31682 65FR66443
111	4,4'-DDT	50293	1.1 G,ii	0.001 G,aa,ii	0.00022 B,C	0.00022 B,C	65FR31682 65FR66443

					Human Health For Consumption of:		
Priority Pollutant		CAS Number	CMC (µg/L) A1	CCC (µg/L) A2	Water + Organism (µg/L) B1	Organism Only (µg/L) B2	FR Cite/ Source
112	4,4'-DDE	72559			0.00022 B,C	0.00022 B,C	65FR66443
113	4,4'-DDD	72548			0.00031 B,C	0.00031 B,C	65FR66443
114	Dieldrin	60571	0.24 K	0.056 K,O	0.000052 B,C	0.000054 B,C	65FR31682 65FR66443
115	alpha-Endosulfan	959988	0.22 G,Y	0.056 G,Y	62 B	89 B	65FR31682 65FR66443
116	beta-Endosulfan	3321365 9	0.22 G,Y	0.056 G,Y	62 B	89 B	65FR31682 65FR66443
117	Endosulfan Sulfate	1031078			62 B	89 B	65FR66443
118	Endrin	72208	0.086 K	0.036 K,O	0.059	0.060	65FR31682 68FR75510
119	Endrin Aldehyde	7421934			0.29 B	0.30 B,H	65FR66443
120	Heptachlor	76448	0.52 G	0.0038 G,aa	0.000079 B,C	0.000079 B,C	65FR31682 65FR66443
121	Heptachlor Epoxide	1024573	0.52 G,V	0.0038 G,V,aa	0.000039 B,C	0.000039 B,C	65FR31682 65FR66443
122	Polychlorinated Biphenyls PCBs:			0.014 N,aa	0.000064 B,C,N	0.000064 B,C,N	65FR31682 65FR66443

					Human Health For Consumption of:		
Priority Pollutant		CAS Number	CMC (µg/L) A1	CCC (µg/L) A2	Water + Organism (µg/L) B1	Organism Only (µg/L) B2	FR Cite/ Source
123	Toxaphene	8001352	0.73	0.0002 aa	0.00028B ,C	0.00028 B,C	65FR31682 65FR66443

Note: The values for dissolved metals that are shown on this table are calculated using a hardness of 100.

Footnotes:

- A This recommended water quality criterion was derived from data for arsenic (III), but is applied here to total arsenic, which might imply that arsenic (III) and arsenic (V) are equally toxic to aquatic life and that their toxicities are additive. In the arsenic criteria document (EPA 440/5-84-033, January 1985), Species Mean Acute Values are given for both arsenic (III) and arsenic (V) for five species and the ratios of the SMAVs for each species range from 0.6 to 1.7. Chronic values are available for both arsenic (III) and arsenic (V) for one species; for the fathead minnow, the chronic value for arsenic (V) is 0.29 times the chronic value for arsenic (III). No data are known to be available concerning whether the toxicities of the forms of arsenic to aquatic organisms are additive.
- B This criterion has been revised to reflect The Environmental Protection Agency's q1* or RfD, as contained in the Integrated Risk Information System (IRIS) as of May 17, 2002. The fish tissue bioconcentration factor (BCF) from the 1980 Ambient Water Quality Criteria document was retained in each case.
- C This criterion is based on carcinogenicity of 10⁻⁶ risk. Alternate risk levels may be obtained by moving the decimal point (e.g., for a risk level of 10⁻⁵, move the decimal point in the recommended criterion one place to the right).
- D Freshwater criteria for metals are expressed in terms of the dissolved metal in the water column. The recommended water quality criteria value was calculated by using the previous 304(a) aquatic life criteria expressed in terms of total recoverable metal, and multiplying it by a conversion factor (CF). The term "Conversion Factor" (CF) represents the recommended conversion factor for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column. See "Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria", October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available from the Water Resource center, USEPA, 401 M St., SW,

- mail code RC4100, Washington, DC 20460; and 40CFR131.36(b)(1). Conversion Factors applied in the table can be found in section 11 of this chapter.
- E The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. The value given here corresponds to a hardness of 100 mg/L. Criteria values for other hardness may be calculated from the following: $CMC (dissolved) = \exp\{m_A [\ln(hardness)] + b_A\}$ (CF), or $CCC (dissolved) = \exp\{m_C [\ln(hardness)] + b_C\}$ (CF) and the parameters specified in section 11 of this chapter - Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness-Dependent. Lead is expressed at Total Lead using the equation $CMC (total) = \exp\{m_A [\ln(hardness)] + b_A\}$, or $CCC (total) = \exp\{m_C [\ln(hardness)] + b_C\}$ and the parameters specified in section 11 of this chapter. Hardness is based on the ambient values found at the time of sampling; no low end hardness cap is used.
- F Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: $CMC = \exp(1.005(pH) - 4.869)$; $CCC = \exp(1.005(pH) - 5.134)$. Values displayed in table correspond to a pH of 7.8.
- G This Criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endosulfan (EPA 440/5-80-046), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5-80-052), Hexachlorocyclohexane (EPA 440/5-80-054), Silver (EPA 440/5-80-071). The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines. For example, a "CMC" derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.
- H No criterion for protection of human health from consumption of aquatic organisms excluding water was presented in the 1980 criteria document or in the *1986 Quality Criteria for Water*. Nevertheless, sufficient information was presented in the 1980 document to allow the calculation of a criterion, even though the results of such a calculation were not shown in the document.
- I This criterion for asbestos is the Maximum Contaminant Level (MCL) developed under the Safe Drinking Water Act (SDWA).
- J This letter not used as a footnote.
- K This recommended criterion is based on a 304(a) aquatic life criterion that was issued in the *1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water*, (EPA-820-B-96-001, September 1996). This value was derived using the GLI Guidelines (60FR15393-15399, March 23, 1995; 40CFR132 Appendix A); the difference between the 1985 Guidelines and the GLI Guidelines are explained on page iv of the 1995 Updates.
- L This letter not used as a footnote.
- M EPA is currently reassessing the criteria for arsenic.
- N This criterion applies to total PCBs, (e.g., the sum of all congener or all isomer or homolog or Aroclor analyses.)

- O The derivation of the CCC for this pollutant (Endrin) did not consider exposure through the diet, which is probably important for aquatic life occupying upper trophic levels.
- P Although a new RfD is available in IRIS, the surface water criteria will not be revised until the National Primary Drinking Water Regulations: Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) is completed, since public comment on the relative source contribution (RSC) for chloroform is anticipated.
- Q This recommended water quality criterion is expressed as weak acid dissociable μg free cyanide (as CN)/L.
- R This letter not used as a footnote.
- S This recommended water quality criterion for arsenic refers to the inorganic form only.
- T This recommended water quality criterion for selenium is expressed in terms of total recoverable metal in the water column. It is scientifically acceptable to use the conversion factor (0.996- CMC or 0.922- CCC) that was used in the GLI to convert this to a value that is expressed in terms of dissolved metal.
- U The organoleptic effect criterion is more stringent than the value for priority toxic pollutants.
- V This value was derived from data for heptachlor and the criteria document provides insufficient data to estimate the relative toxicities of heptachlor and heptachlor epoxide.
- W Although EPA has not published a completed criteria document for butylbenzyl phthalate it is EPA's understanding that sufficient data exist to allow calculation of aquatic criteria. It is anticipated that industry intends to publish in the peer reviewed literature draft aquatic life criteria generated in accordance with EPA Guidelines. EPA will review such criteria for possible issuance as national WQC.
- X There is a full set of aquatic life toxicity data that show that DEHP is not toxic to aquatic organisms at or below its solubility limit.
- Y This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.
- Z A more stringent MCL has been issued by EPA. Refer to drinking water regulations (40 CFR 141) or Safe Drinking Water Hotline (1-800-426-4791) for values.
- aa This criterion is based on a 304(a) aquatic life criterion issued in 1980 or 1986, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5-80-052), Polychlorinated biphenyls (EPA 440/5-80-068), Toxaphene (EPA 440/5-86-006). This CCC is currently based on the Final Residue Value (FRV) procedure. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the Agency no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria. Therefore, the Agency anticipates that future revisions of this CCC will not be based on the FRV procedure.
- bb This water quality criterion is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (*Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, PB85-227049, January 1985) and was issued in one of the following criteria documents: Arsenic (EPA 440/5-84-033), Cadmium

- (EPA-822-R-01-001), Chromium (EPA 440/5-84-029), Copper (EPA 440/5-84-031), Cyanide (EPA 440/5-84-028), Lead (EPA 440/5-84-027), Nickel (EPA 440/5-86-004), Pentachlorophenol (EPA 440/5-86-009), Toxaphene, (EPA 440/5-86-006), Zinc (EPA 440/5-87-003).
- cc When the concentration of dissolved organic carbon is elevated, copper is substantially less toxic and use of Water-Effect Ratios might be appropriate.
- dd This letter not used as a footnote.
- ee This letter not used as a footnote.
- ff This letter not used as a footnote.
- gg EPA is actively working on this criterion and so this recommended water quality criterion may change substantially in the near future.
- hh if the CCC for mercury exceeds 0.012 ug/l more than once in a 3-year period in the ambient water, the edible portion of aquatic species of concern must be analyzed to determine whether the concentration of methylmercury exceeds the FDA action level.
- ii This criterion applies to DDT and its metabolites (i.e., the total concentration of DDT and its metabolites should not exceed this value).
- jj This recommended water quality criterion is expressed as total cyanide, even though the IRIS RFD we used to derive the criterion is based on free cyanide. The multiple forms of cyanide that are present in ambient water have significant differences in toxicity due to their differing abilities to liberate the CN-moiety. Some complex cyanides require even more extreme conditions than refluxing with sulfuric acid to liberate the CN-moiety. Thus, these complex cyanides are expected to have little or no 'bioavailability' to humans. If a substantial fraction of the cyanide present in a water body is present in a complexed form (e.g., $\text{Fe}_4[\text{Fe}(\text{CN})_6]_3$), this criterion may be over conservative.
- kk This recommended water quality criterion was derived using the cancer slope factor of 1.4 (LMS exposure from birth).

(11) Calculation of Dissolved Metals Criteria

The 304(a) criteria for metals, shown as dissolved metals, are calculated in one of two ways. For freshwater metals criteria that are hardness-dependent, the dissolved metal criteria were calculated using a hardness of 100 mg/l as CaCO_3 for illustrative purposes only. Freshwater metals' criteria that are not hardness-dependent are calculated by multiplying the total recoverable criteria before rounding by the appropriate conversion factors. The final dissolved metals' criteria in the table are rounded to two significant figures. Information regarding the calculation of hardness dependent conversion factors are included in the footnotes. Actual hardness values found at the time of sampling shall be used in hardness-dependent calculations. High end hardness is capped at 400mg/L and is not capped at the low end.

Conversion Factors for Dissolved Metals

Metal	Conversion Factor freshwater CMC	Conversion Factor freshwater CCC
Arsenic	1.000	1.000
Cadmium	$1.136672 - [(\ln \text{hardness})(0.041838)]$	$1.101672 - [(\ln \text{hardness})(0.041838)]$
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Copper	0.960	0.960
Mercury	0.85	0.85
Nickel	0.998	0.997
Selenium	--	--
Silver	0.85	--
Zinc	0.978	0.986

Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness-Dependent

Chemical	m_A	b_A	m_C	b_C	Freshwater Conversion Factors (CF)	
					CMC	CCC
Cadmium	1.0166	-3.924	0.7409	-4.719	$1.136672 - [(\ln \text{hardness})(0.041838)]$	$1.101672 - [(\ln \text{hardness})(0.041838)]$

Chemical	m _A	b _A	m _C	b _C	Freshwater Conversion Factors (CF)	
					CMC	CCC
					8)]	8)]
Chromium III	0.8190	3.7256	0.8190	0.6848	0.316	0.860
Copper	0.9422	-1.700	0.8545	-1.702	0.960	0.960
Lead (Total)	1.273	-1.460	1.273	-4.705		
Nickel	0.8460	2.255	0.8460	0.0584	0.998	0.997
Silver	1.72	-6.59	--	--	0.85	--
Zinc	0.8473	0.884	0.8473	0.884	0.978	0.986

Hardness-dependent metals= criteria may be calculated from the following:

CMC (dissolved) = $\exp\{m_A [\ln(\text{hardness})] + b_A\}$ (CF); CCC (dissolved) = $\exp\{m_C [\ln(\text{hardness})] + b_C\}$ (CF)

Total Lead: CMC = $\exp\{m_A [\ln(\text{hardness})] + b_A\}$; CCC = $\exp\{m_C [\ln(\text{hardness})] + b_C\}$

(12) Calculation of Freshwater Ammonia Criterion

(a). The one-hour average concentration of total ammonia nitrogen (in mg N/L) does not exceed, more than once every three years on the average, the CMC (acute criterion) calculated using the following equations.

$$\text{CMC} = \frac{0.275}{1 + 10^{7.204 - \text{pH}}} + \frac{39.0}{1 + 10^{\text{pH} - 7.204}}$$

(b) The thirty-day average concentration of total ammonia nitrogen (in mg N/L) does not exceed, more than once every three years on the average, the CCC (chronic criterion) calculated using the following equations.

When fish early life stages are absent:

$$CCC = \left(\frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}} \right) \times 1.45 \times 10^{0.028(25 - \text{MAX}(T, 7))}$$

(c) In addition, the highest four-day average within the 30-day period should not exceed 2.5 times the CCC.

8. RADIOACTIVE SUBSTANCES

(1) Radioisotope concentrations in all Reservation TAS Waters shall not exceed concentrations which result in a significant hazard to humans

(2) For the protection of human health concentrations of radioactive materials for all Reservation TAS Waters shall not exceed the following:

- (a) Gross Alpha Particle Activity - 15 pCi/L
- (b) Gross Beta Particle Activity - 50 pCi/L
- (c) Tritium - 20,000 pCi/L
- (d) Strontium 90 - 8 pCi/L
- (e) Radium 226/Radium 228 - 3 pCi/L

9. BIOLOGICAL CRITERIA

(1) Reservation TAS Waters shall be of sufficient quality to support aquatic biota without detrimental changes in the resident aquatic communities.

(2) Reservation TAS Waters shall be free from substances, whether attributable to point source discharges, nonpoint sources, or instream activities, in concentrations or combinations which would impair the structure or limit the function of the resident aquatic community as it naturally occurs.

(3) The structure and function of the aquatic community shall be measured by biological assessment methods approved by the Department.

(4) Determination of impairment or limitation of the resident aquatic community shall be based on a comparison with the aquatic community found at an appropriate reference site or region.

10. WILDLIFE CRITERIA

Reservation TAS Waters shall be of sufficient quality to protect and support all life stages of resident and/or migratory wildlife species which live in, on, or drink from Reservation TAS Waters.

11. WETLANDS

(1) All wetlands which are considered Reservation TAS Waters, and which are not constructed wetlands, shall be subject to the Narrative Criteria (section 5), Antidegradation (section 6), and Narrative Toxic Substances Criterion (section 7(1)) provisions within this chapter.

(2) Water quality in wetlands which are considered Reservation TAS Waters shall be maintained at naturally occurring levels, within the natural range of variation for the individual wetland.

(3) Physical and biological characteristics shall be maintained and protected by:

(a) Maintaining hydrological conditions, including hydroperiod, hydrodynamics, and natural water temperature variations;

(b) Maintaining the natural hydrophytic vegetation; and

(c) Maintaining substrate characteristics necessary to support existing and designated uses.

(4) Wetlands shall not be used in lieu of stormwater treatment, except as specified by number 7, below. Stormwater shall be treated before discharge to a wetland.

(5) Point and nonpoint sources of pollution shall not cause destruction or impairment of wetlands except where authorized under section 404 of the CWA.

(6) Wetlands shall not be used as repositories or treatment systems for wastes from human sources, except as specified by number 7, below.

(7) Wetlands intentionally created from non-wetland sites for the sole purpose of wastewater or stormwater treatment (constructed wetlands) are not considered "Reservation TAS Waters" and are not subject to the provisions of this section.

12. MIXING ZONES

(1) General Conditions

(a) The Department may allow a designated portion of a receiving water to serve as a zone of dilution for wastewaters and receiving waters to mix thoroughly and this zone will be defined as a mixing zone.

(b) Mixing zones may be granted for whole effluent or on a pollutant by pollutant basis.

(c) The allowable size, shape, and location of a mixing zone shall be established in certifications under Section 401 of the CWA, or orders, as appropriate. In determining the location, surface

area, and volume of a mixing zone, the Department or EPA may use appropriate mixing zone guidelines (such as EPA /505/2-90-001) to assess the biological, physical, and chemical character of receiving waters, and effluent, and the most appropriate placement of the outfall, to protect instream water quality, public health, and other designated uses.

- (d) The Department may, as necessary, require mixing zone monitoring studies and/or bioassays and biosurveys as appropriate to be conducted to evaluate water quality or biological status within and outside of the mixing zone boundary.
- (e) The Department may require revision, revocation or denial of permits authorizing mixing zones upon expiration of the permit, or prior to expiration if information suggests that the nature and impacts of the mixing zone are different than the conditions used to determine mixing zone criteria.
- (f) No mixing zone shall be granted unless the supporting information clearly indicates the mixing zone would not have a reasonable potential to cause a loss of or impair recovery of aquatic life, wildlife, or sensitive or important habitat; create a barrier to migration of species; or substantially interfere with the existing or designated uses of the water body as a whole; result in damage to the ecosystem; or adversely affect threatened and endangered species or public health as determined by the Department.
- (g) No Mixing zone shall be granted unless the supporting information clearly indicates that it would not cause lethality to organisms passing through the mixing zone.
- (h) Mixing zones will not be granted for discharges to outstanding resource waters, wetlands, or ephemeral or intermittent streams.
- (i) In TAS waters having a mean detention time greater than 15 days, mixing zones shall not be allowed unless it can be demonstrated to the satisfaction of the Department that:
 - (A) other siting, technological, and managerial options that would avoid the need for a lake mixing zone are not reasonably achievable;
 - (B) overriding considerations of the public interest and the Tribe will be served; and,
 - (C) all technological and managerial methods available for pollution reduction and removal that are economically achievable would be implemented prior to the discharge. Such methods may include, but not be limited to, advanced waste treatment techniques.
- (j) The Department shall consider prohibiting mixing zones under the following circumstances:
 - (A) where discharges could create or foster conditions in sediments within and outside of the mixing zone that have the reasonable potential to cause damage to the ecosystem;
 - (B) for known or suspected carcinogens, mutagens, teratogens, or bioaccumulative or persistent pollutants;
 - (C) where discharges could cause an exceedance of the chronic criteria outside of the mixing zone boundary;
 - (D) where aquatic life could be attracted to the plume and harmed;

- (E) where the mixing zone could impact drinking water intakes, recreation sites, cultural areas, and biologically important areas such as fish spawning/nursery areas; and,
- (F) where the discharge could adversely impact threatened and endangered species.
- (k) Mixing zones shall not be used for, or considered as, a substitute for waste treatment. The applicant shall show, to the satisfaction of the Department, that all reasonable current technology for wastewater treatment, pollution control, and waste reduction have been fully applied before a mixing zone is granted.
- (l) Except as specified in "Narrative Water Quality Criteria"(section 4) water quality standards may be exceeded within the mixing zone as provided for in a discharge permit or order. Determination of the dilution available and size of mixing zones will consider the following:
 - (A) critical conditions;
 - (B) mixing characteristics of the receiving water;
 - (C) characteristics of the effluent; and,
 - (D) impacts to use classifications of the receiving water.
- (m) Mixing zones shall be as small as feasible, and shall minimize the adverse effects on the indigenous biological community, especially when species are present that warrant special protection for their cultural significance, economic importance, ecological uniqueness, or for other similar reasons as determined by the Department.
- (n) Where mixing zones are adjacent or overlapping, the total size of all mixing zones shall not exceed the size allowed for one mixing zone.

(2) Critical Design Flows

Mixing zone specifications and water quality-based effluent limits shall be based on the following critical design flows:

- (A) chronic criteria: the 7Q10 flow
- (B) acute criteria: 1Q10 flow or at the point of discharge
- (C) human health criteria - carcinogens: harmonic mean flow
- (D) health criteria - non-carcinogens: the 30Q5 flow
- (E) ammonia – 30B4 (in accordance with EPA-822-R-99-014 Dec 1999)

13. IMPLEMENTATION

- (1) The requirements of these water quality standards shall be met for Reservation TAS Waters with approved water quality standards. No person shall engage in any activity that violates or causes the violation of these standards. All discharges from point sources, all in-stream activities and all activities which generate nonpoint source pollution shall be conducted so as to comply with this chapter. Compliance shall be determined by the Department.
- (2) All permits issued or reissued (upstream of, or creating a direct impact to Reservation TAS approved waters), and all activities undertaken by the Tribe, the U.S. Environmental Protection

Agency, the Bureau of Indian Affairs, the U.S. Army Corps of Engineers, the Federal Energy Regulatory Commission (FERC), state agencies, or any other government agencies or commissions shall be conditioned in such a manner as to authorize only activities that will not cause violations of this chapter. Permits may be subject to modification by the permitting authority whenever it appears to the Department and/or the permitting authority that the activity violates water quality standards.

(3) Best management practices shall be applied so that when all appropriate combinations of individual best management practices are utilized, violation of water quality criteria shall be prevented. If a person is applying all best management practices appropriate or required by the Department and a violation of water quality criteria occurs, the person shall modify existing practices or apply further water pollution control measures, selected or approved by the Department, to achieve compliance with water quality criteria. Best management practices established in permits, orders, rules or directives shall be reviewed and modified by the Department, as appropriate, to achieve compliance with water quality criteria.

(4) Activities which cause pollution of stormwater shall be conducted so as to comply with the water quality standards. The primary means to be used for requiring compliance with the standards shall be through best management practices required in waste discharge permits, rules, orders, and directives issued by the Department for activities which generate stormwater pollution.

(5) Sample collection, preservation, and analytical procedures to determine compliance with these standards shall conform to the guidelines of 40 CFR, Part 136, and with the Coeur d'Alene Tribe's Quality Assurance Project Plan (QAPP) for Nonpoint Source and Point Source Pollution Monitoring and Water Quality Standards Implementation Monitoring (approved by EPA in October, 2003). If guidance does not exist, procedures shall conform with other methods accepted by the scientific community and deemed appropriate by the Department.

14. ENFORCEMENT

This Chapter shall be enforced through all methods available to the Department.

15. ALLOWANCE FOR COMPLIANCE SCHEDULES

(1) NPDES permits issued under federal or tribal authority, and orders and directives of the Department issued under tribal authority for existing discharges or activities may include a schedule for achieving compliance with water quality criteria contained in this chapter. Such schedules of compliance shall be developed to ensure final compliance with all water quality criteria in the shortest practicable time, but not to exceed five years. Decisions regarding whether to issue schedules of compliance will be made on a case-by-case basis by the permitting agency and must be approved by the Department. Schedules of compliance may not be issued for new discharges or activities. Schedules of compliance may be issued to allow for:

- (a) construction of necessary treatment capability;
- (b) implementation of necessary best management practices;
- (c) implementation of additional best management practices for sources determined not to meet water quality criteria following implementation of an initial set of best management practices; and,
- (d) completion of necessary water quality studies.

(2) For the period of time during which compliance with water quality criteria is deferred, interim limitations and/or other conditions may be formally established, based on the best professional judgment of the permitting agency and the Department.

(3) Prior to establishing a schedule of compliance, the permitting agency shall require the permittee to evaluate the possibility of achieving water quality criteria via non-construction changes (e.g. facility operation, pollution prevention).

16. SHORT-TERM EXCEEDANCES

(1) The criteria established in these standards may be exceeded for a specific water body on a short-term basis in order to respond to emergencies, to accommodate essential activities, or to otherwise protect the public health and welfare, even though such activities may result in a temporary reduction of water quality conditions below those criteria established by this regulation. Such exceedances shall be issued in writing by the Director, subject to such terms and conditions as he/she may prescribe.

(2) Short-term exceedances shall not exceed a thirty day period and shall be kept as short as feasible.

(3) In no case will any degradation of water quality or aquatic habitat be allowed if this degradation could interfere with, or becomes injurious to, existing water uses or causes long-term harm to the environment or cultural resources. No short-term exceedance may be issued where it could adversely impact threatened or endangered species or their critical habitat.

(4) A request for a short-term exceedance shall be made, in writing, to the Department. Such requests shall be made at least thirty days prior to the start of the activity impacting water quality, unless the exceedance is in response to an emergency requiring immediate attention in which case notification shall be provided within twenty-four hours of the response decision.

(5) Aquatic application of all pesticides shall require a short-term exceedance be granted prior to application. These applications shall include, at a minimum, the following conditions:

- (a) Such pesticide application shall be in accordance with all federal, tribal and local regulations; and,
- (b) Such application shall be in accordance with label provisions promulgated by EPA under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 U.S.C. 136, et seq.); and,
- (c) Such application shall not result in conditions injurious to indigenous aquatic biota, wildlife, humans, cultural resources, or other existing or designated uses of the water body; and,

(d) Public notice, including identification of the pesticide, applicator, location where the pesticide will be applied, proposed timing and method of application, and any water use restrictions shall be provided by the applicator; and,

(e) The Department shall be notified at least three business days prior to pesticide application; and,

(f) Any additional conditions required by the Department.

(6) In the event of any fish kills or other harm to indigenous aquatic dependent resources, the Department shall be notified within three hours.

17. PUBLIC INVOLVEMENT

From time to time, but at least once every three years (or whenever revisions to the standards are deemed necessary or mandated by EPA), the Department shall hold public hearings for the purpose of reviewing the water quality standards and, as appropriate, modifying and adopting standards. The Department will issue public notice of proposed changes and provide opportunity for public comment. Public participation, including time periods for public notice and commenting, will follow federal regulations for public participation in programs under the Clean Water Act defined in 40 CFR Part 25. The Tribe will submit all revisions to these standards to EPA for review.

18. WATER USE CLASSIFICATION

Water quality standards regulations require the Tribe to specify appropriate water uses to be achieved and protected. Section 131.10 of 40 CFR requires that Tribes take into consideration the use and value of water for public water supplies; protection and propagation of fish, shellfish, and wildlife, recreation in and on the water, agricultural, industrial, and other purposes including navigation. The Tribe must also take into consideration the water quality standards of downstream waters, and ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters.

The designated uses for which Reservation TAS Waters are to be protected include, but are not limited to, the following:

(1) Domestic Water Supply. Surface waters which are suitable or intended to become suitable for drinking water supplies.

(2) Agricultural Water Supply. Surface waters which are suitable or intended to become suitable for the irrigation of crops or as drinking water for livestock.

(3) Recreational and Cultural Water Uses. Surface waters which are suitable or intended to become suitable for prolonged intimate contact by humans or for activities where the ingestion of small quantities of water is likely to occur. Such waters include, but are not restricted to, those used for swimming, wading, fishing, boating, or for ceremonial or cultural purposes.

(4) Aquatic Life Uses

(a) Bull Trout and Cutthroat Trout. Surface waters used for, or naturally suitable as habitat for bull trout and cutthroat trout.

19. SPECIFIC WATER QUALITY CRITERIA FOR USE CLASSIFICATIONS

(1) Domestic Water Supply. Waters designated for domestic water supply are subject to the following criteria:

(a) Turbidity. Turbidity shall not exceed 1 NTU (Nephelometric turbidity unit) over natural background levels when the natural background turbidity is 10 NTU or less, or have more than a 10 percent increase in turbidity when the natural background level is more than 10 NTU. Natural background turbidity for implementing this criteria is to represent the 90th percentile value of the annual average turbidity.

(b) pH. pH shall be within the range of 6.5 to 8.5, with a human caused variation within this range of less than 0.5 units over any 24 hour period.

(c) Alkalinity. Alkalinity should generally be maintained within the range of 50 to 120 mg/L. Variations outside this range are to be avoided where practical alternatives exist.

(d) Bacterial Waste. Livestock, pet, and human sewage are not allowed to drain or be discharged into Reservation TAS Waters unless controlled or treated with best management practices or waste treatment technology appropriate and approved by the Tribe or the U.S. Environmental Protection Agency.

(e) Total Dissolved Solids. Total dissolved solids shall not exceed 500mg/L

(2) Agricultural Water Supply. Waters designated for agricultural water supply are subject to the following criteria:

(a) Electrical Conductivity. Electrical conductivity is not to exceed an arithmetic mean of 700 microsiemens per centimeter during periods when the surface water is used as an agricultural water supply, based on a minimum of three samples.

(b) Total Suspended Solids. The concentration of total suspended solids is not to exceed an arithmetic mean of 75 mg/L during periods when the surface water is used as an agricultural water supply, based on a minimum of three samples.

(c) pH. pH shall be within the range of 6.5 to 8.5, with a human caused variation within this range of less than 0.5 units over any 24-hour period.

(d) Bacterial Waste. Livestock, pet, and human sewage are not allowed to drain or be discharged into Reservation TAS Waters unless controlled or treated with best management practices or waste treatment technology appropriate and approved by the Tribe or the U.S. Environmental Protection Agency.

(3) Recreational, and Cultural Water Uses.

(a) Waters designated for recreational and cultural use shall not contain concentrations of *E. coli* bacteria exceeding a 30-day geometric mean of 126 per colonies/100 ml, based on a minimum of 5 samples, and a single sample maximum of 235 colonies/100ml.

(4) Aquatic Life Uses. Waters designated for specific aquatic life uses are subject to the following criteria.

(a) Bull Trout and Cutthroat Trout.

(i) pH. pH shall be within the range of 6.5 to 8.5, with a human caused variation within this range of less than 0.5 units over any 24-hour period.

(ii) Dissolved Oxygen. Dissolved oxygen (DO) shall exceed 8.0 mg/L at all times. From June 1 to September 30 DO criteria shall be determined by natural conditions at the time of stratification. In the event natural conditions are less than 8mg/L at the time of stratification the natural condition found at that time (for that time period only) will become the standard, pursuant to Section 4.

(A) Natural Conditions for DO and Temperature. When TAS waters stratify (usually in June) the average whole water column DO content and temperature at the time of stratification shall be considered the natural condition (for DO and temperature only), pursuant to Section 4.

(B) In TAS waters greater than 15 meters this standard applies to the bottom (deepest) 80 percent of the water column present below the metalimnion. In TAS waters less than 15 meters and greater than 8 meters this standard applies to only the bottom 50 percent of the water column present below the metalimnion. TAS waters exhibiting total water column depths less than 8 meters are not expected to maintain a stable stratified condition and are therefore exempt from this standard.

(iii) Temperature. From June 1, through September 30, the 7-day average of the daily maximum temperatures within the hypolimnion is not to exceed 16° C.

In thermally stratified TAS waters the hypolimnetic temperature shall be determined by natural conditions as defined in Section 19 (4), (a), (ii), (A) and pursuant to Section 4 of these standards. In TAS waters greater than 15 meters this standard applies to the bottom 80 percent of the lake water column present below the metalimnion. In TAS waters less than 15 meters and greater than 8 meters this standard applies to only the bottom 50 percent of the water column present below the metalimnion. TAS waters exhibiting total water column depths less than 8 meters are not expected to maintain a stable stratified condition and are therefore exempt from this standard.

(iv) Turbidity. Turbidity shall not exceed 5 NTU over natural background levels when the natural background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the natural background level is more than 50 NTU. Natural background turbidity for implementing this criteria is to represent the 90th percentile value of the annual average turbidity.

20. GENERAL CLASSIFICATIONS

All Reservation TAS Waters shall be designated, at a minimum, for the protection of Bull Trout and Cutthroat Trout and for recreational and cultural uses, unless a Use Attainability Analysis has first been performed in accordance with water quality standards regulations at 40 CFR 131.10(g). All surface waters not specifically classified in Section 21 shall be designated for aquatic life uses and for recreational and cultural uses. Unclassified Reservation TAS Waters must be of sufficient quality to ensure that downstream uses are fully protected. All Reservation TAS Waters shall be designated for the uses of industrial water supply, aesthetics, and wildlife habitat. Water quality criteria for those uses will be generally satisfied by implementation of the General Conditions in Section 3, and the Narrative Criteria in Section 5.

21. SPECIFIC CLASSIFICATIONS

Specific classifications for Reservation TAS Waters:

Water Body Name	Class
Lake Coeur d’Alene	1,3,4a
St. Joe River	1,2,3,4a
Use Classification Key:	
Domestic Water Supply	1
Agricultural Water Supply	2
Recreational and Cultural Use	3
Aquatic Life Uses	4
	4a: Bull Trout and Cutthroat Trout